

Energy Efficiency Updates Indonesia



Awang Riyadi

Directorate General of New Renewable Energy and Energy Conservation
Ministry of Energy and Mineral Resources

APEC EGEE&C 48th
Tarapoto, Peru



Energy Situation



- Population
- Population Growth

~ 250 millions
the-4th largest in the world

~ 1.2% per year



Energy Growth ~ 7- 8% per year

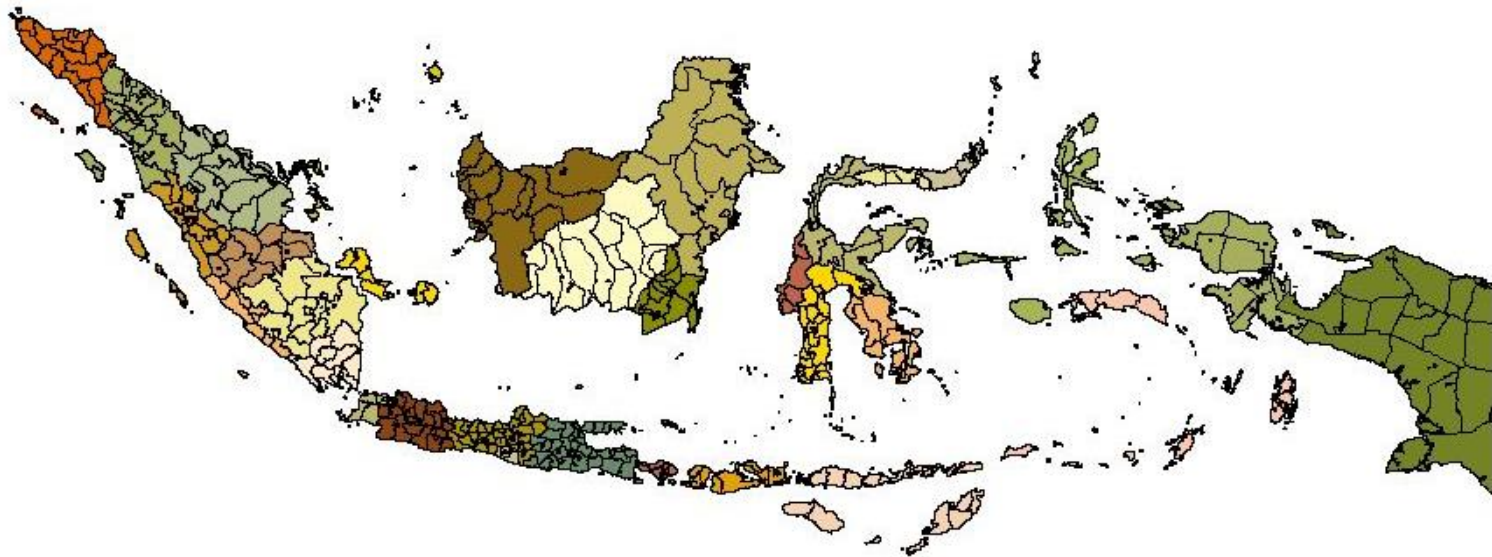


Economic Growth

~ 5 - 6% per year



Electrification Ratio 86%

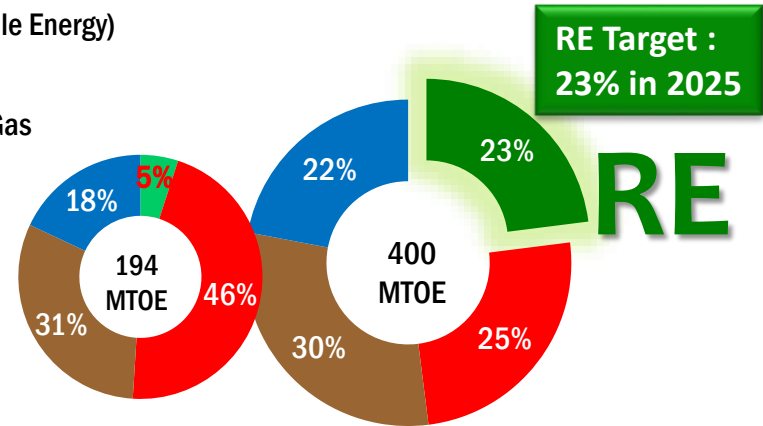
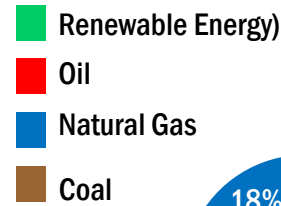


Challenges

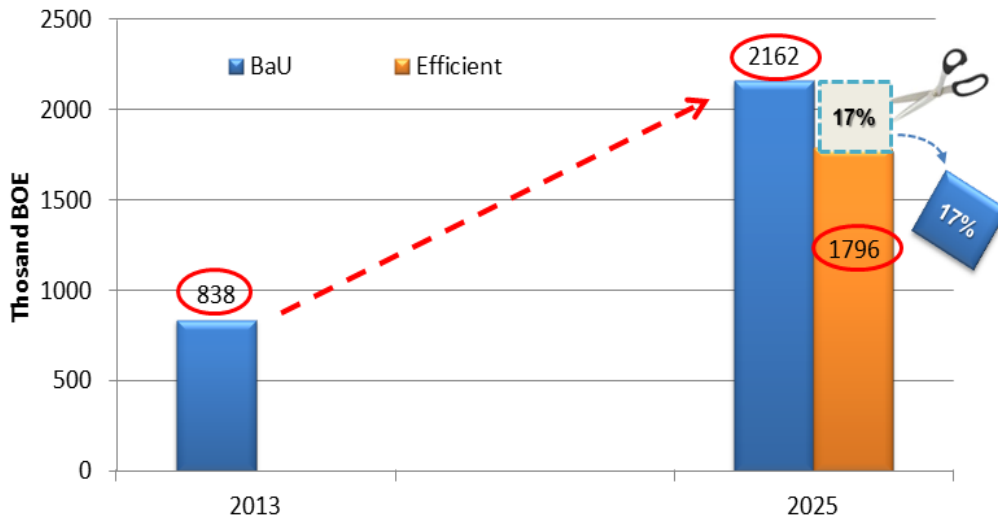
Challenges

1. Highly rely on fossil energy (95%);
2. Fossil energy reserves are limited;
3. Climate change;
4. Renewable energy reserves long time abandoned, need to be unlocked;
5. Energy subsidies

Primary Energy



Final Energy Consumption



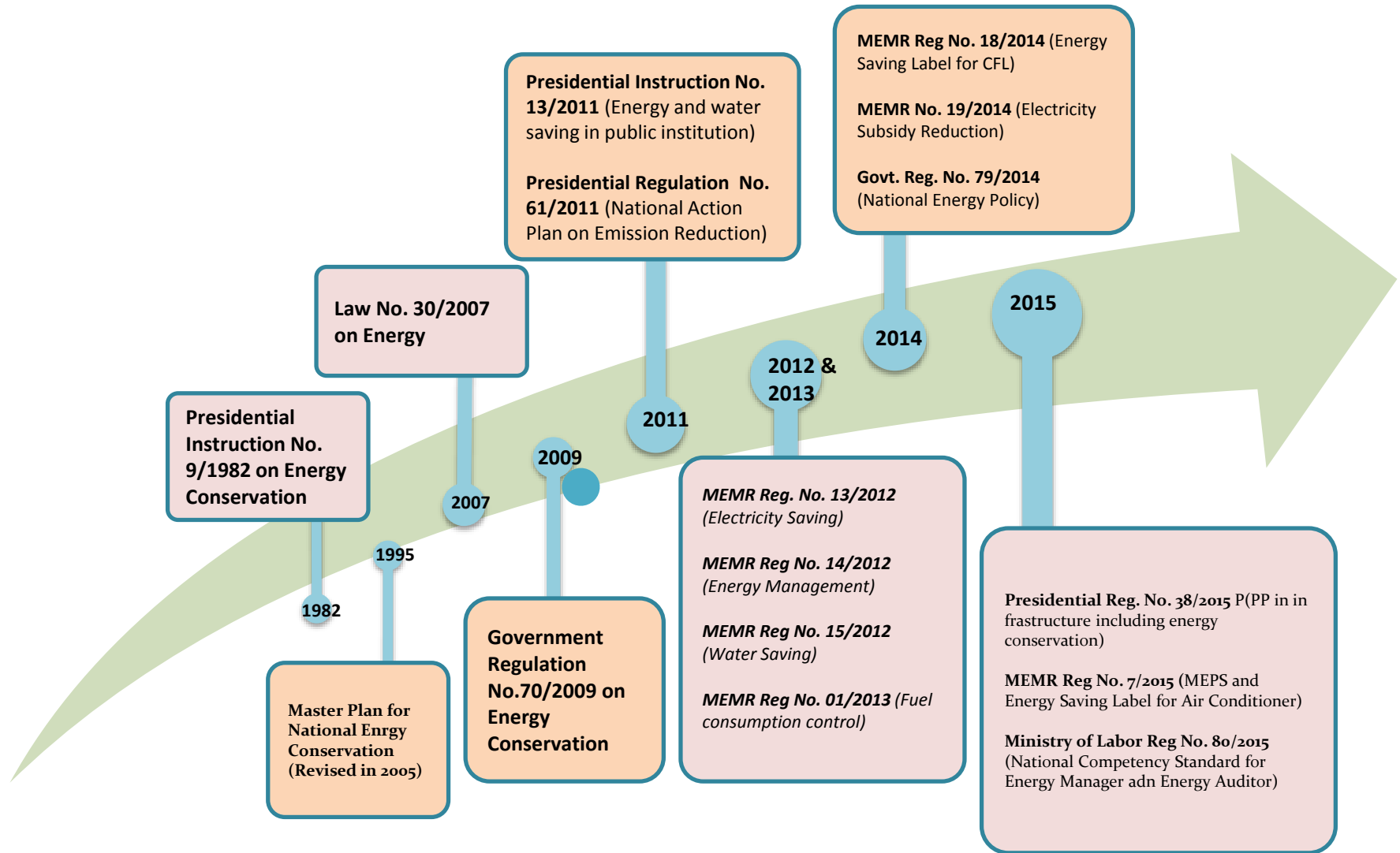
EE&C

Energy Efficiency & Conservation Target :

- Energy Intensity reduction 1% per year;
- Energy saving (vs BAU) 17% in 2025;



Policy and Regulation Footprints

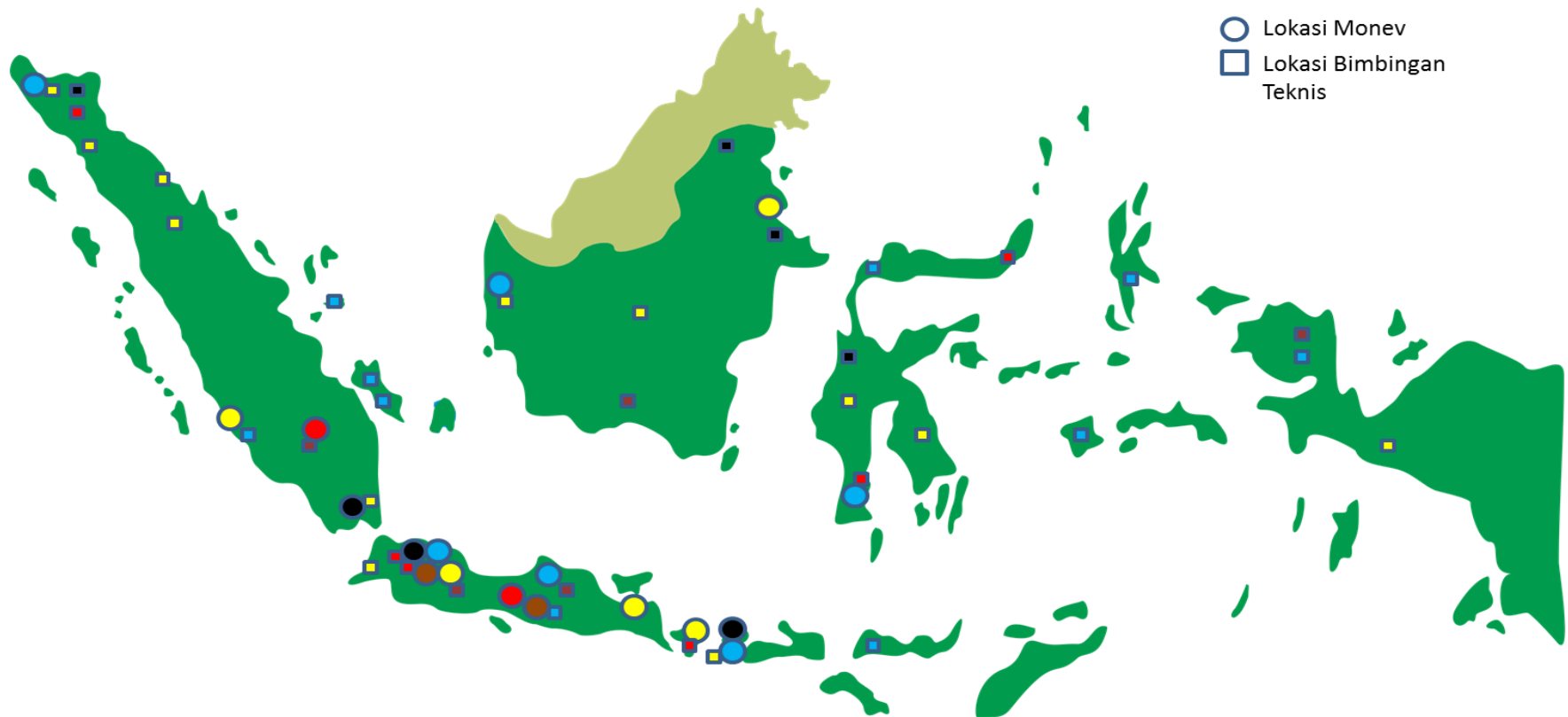


What We Have Done So Far?



Energy and Water Saving For Public Institution

Capacity Building, Monitoring & Evaluation



2011 - 2015 telah dilaksanakan :

- 38 times with participant about 1900 persons
- 19 times Workshop for Energy and Water Saving Monitoring & Evaluation





Energy Audit for Government Buildings



- To encourage Government Institution to do Energy Efficiency
- Identify energy saving potentials

Sample results in 2015

No	Energy Audit Object	Saving Potential (kWh)	Saving Potential (Rp.)
1	Kantor Dinas Pendidikan DKI Jakarta	618.657	721.140.041
2	Kantor Dinas Olahraga dan Pemuda DKI Jakarta	14.878	20.115.436
3	Kantor Kementerian Kelautan dan Perikanan	1.358.500	1.833.975.000
4	Kantor Kementerian Pemuda dan Olahraga	1.813.518	2.022.074.284
5	Kantor Dinas Pencegahan dan Penanggulangan Kebakaran Kota Bandung	13.750	18.562.500
6	Kantor Badan Geologi Bandung	14.878	20.115.436
7	Gedung Rumah Sakit Paru Cirebon	37.492	36.989.726
8	Kantor Bappeda Jawa Tengah	14.878	20.115.436
9	Kantor Bank Sleman	206.324	105.318.806
10	Kantor Sekretariat Daerah Gunung Kidul	16.461	22.222.350
	Total	4.109.336	4.820.629.015



National Energy Efficiency Award



- Promoting Energy Efficiency
- Preliminary selection process for ASEAN Energy Award



Categories :

A. Energy Efficiency Building

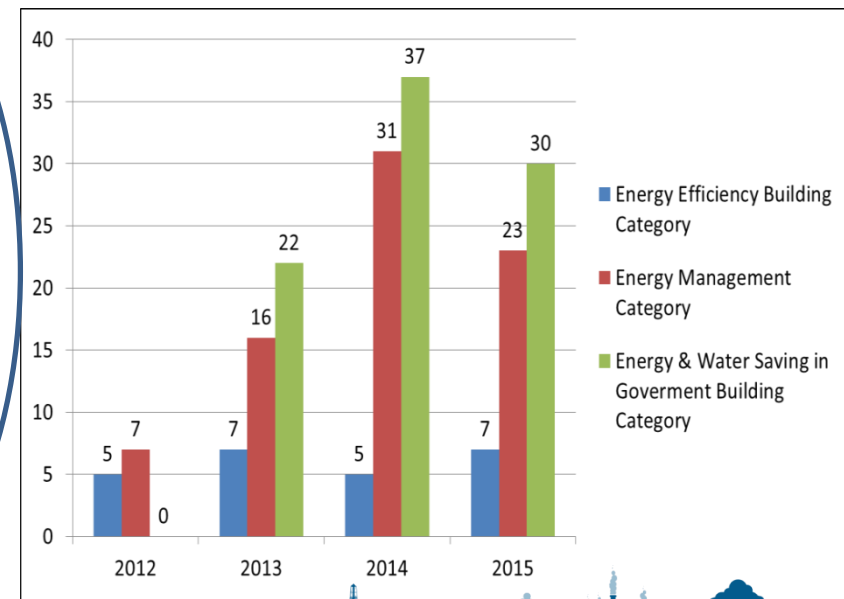
- New Building
- Retrofitted Building
- Tropical Building
- Special Submission
- Green Building
 - Small and medium
 - Large

B. Energy Management on building and industry

- Small and Medium Building
- Large Building
- Small and Medium Industry
- Large Industry
- Special Submission Industry
- Special Submission Building

C. Energy & Water Saving in Government Building

- Center Government Building
- Local Government Building

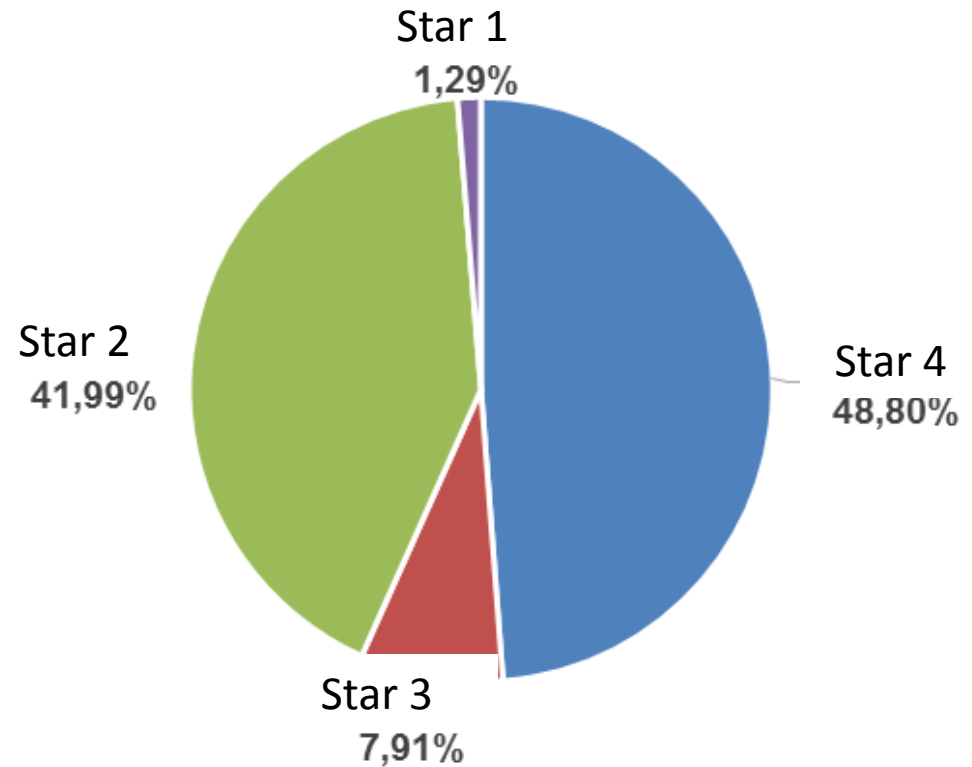


Standard and Label

MEMR Reg. NO. 18 TAHUN 2014
S&L for CFL



SEBARAN TINGKAT HEMAT ENERGI



Standard and Label

MEMR Reg NO. 07 TAHUN 2015

Standard and Label for Air Conditioner



Mandatory since August 2016



MEPS:
EER 8,53.

EER 12,50
Tingkat Hemat
Energi

SEMAKIN BANYAK BINTANG SEMAKIN HEMAT

MODEL: UNIT DALAM	AC-095FLWi		
UNIT LUAR	AC-095FLWk		
DAYA	720 W	KAPASITAS PENDINGINAN	9000 BTU/h
NO. REGISTER	01.1.1.12,50.4.15.01		

Energy Saving Label Criteria :

★	$8,53 \leq EER < 9,01$
★★	$9,01 \leq EER < 9,96$
★★★	$9,96 \leq EER < 10,41$
★★★★	$10,41 \leq EER$

- Energy efficiency ratio (EER).
EER : Efek pendinginan (Btu/Jam) / Energi Input (W)



ENERGY MANAGEMENT



Indonesia's Policy on Energy Management

ISO 50001 energy management system had been adopted as SNI 50001 in 2012

SKKNI (National Competency Standard) on energy manager was revised to adopt ISO 50001 in 2014

ISO 50001 accreditation scheme was issued in 2014 and 3 Certification Bodies had been applied

Law of 3/2014 on Industry obligated heavy energy consumer to manage their energy consumption.

Establishment of Indonesia Energy Foundation (YEI) as EnMS, SO and EE expert pool and service centre; industries start to use the YEI services

Activities in 2016 and 2017 :

- Encourage the establishment of Energy manager and Auditor CB
- Development of University Curricula on EnMS

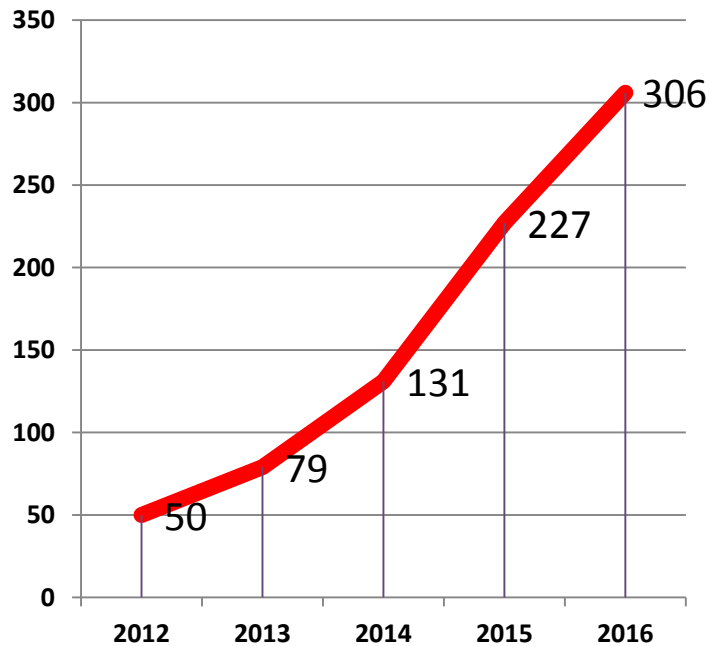


Certified Energy Manager



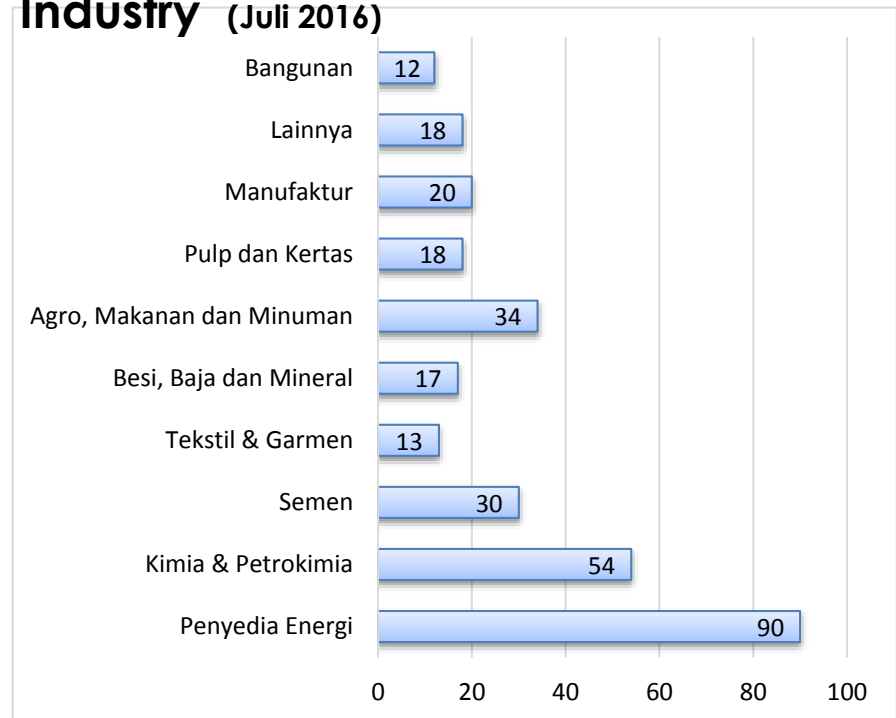
STANDAR KOMPETENSI KERJA
NASIONAL INDONESIA

Certified Energy Manager (Juli 2016)



Sumber : Direktorat Konservasi
2016

Certified Energy Manager by Type of Industry (Juli 2016)



Sumber : Direktorat Konservasi,
Agustus 2016



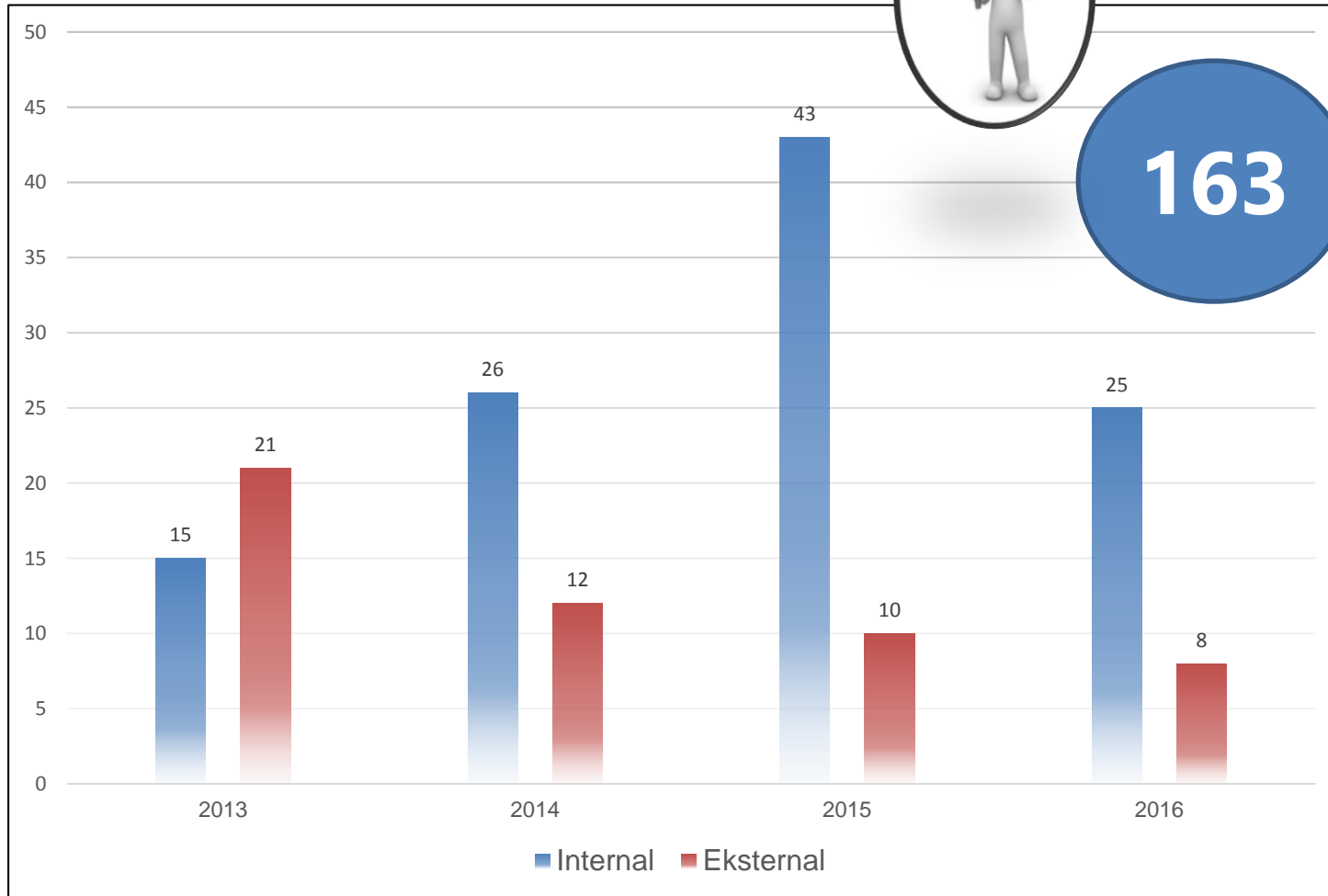
Certified Energy Auditor



STANDAR KOMPETENSI KERJA
NASIONAL INDONESIA



163



ISO 5001 Certified Companies

6 pilots companies :

1. IKPP Tangerang (Pulp paper)
2. Apac Inti Corpora (textile)
3. Chingluh (Textile)
4. Indolakto (Food)
5. KMK Global Sport (Footwear)
6. Nippon Shokubai Indonesia (Chemical)



GEF 4 Project: Energy Efficiency in the Industries

UNIDO-Indonesia: Promoting Industrial Energy Efficiency through System Optimization and Energy Management Standards

1. Achievements - EnMS

1. EnMS ISO 50001 Outputs	Achievement April 2016
Executives Briefing	300 executives
Trained Industries personnel	425 persons
Trained National Expert	38 experts
EnMS Pilots companies	19 companies (+ 9 on going pilots)
EnMS planning adoption	96 adoption
National campaign on ISO 50001	5 cities, 200 participants
Government staff	200 trained

Activities in 2016 and 2017 :

- 2 Executives briefing on EnMS and SO
- 15 EnMS pilot companies replication by NE
- Survey on EnMS planning adoption
- 4 more Peer to peer network on EnMS

16



2. Achievements - SO

2. System Optimization (Steam, Pump, Compressed-air) Outputs	Achievement April 2016
Trained Industries personnel	412 persons
Trained National Expert	46 experts
SO Assessment	36 assessments
SO Project Implemented	48 projects
Vendors Trained	84 representatives

Activities in 2016 and 2017 :

- 30 SO pilot companies assessments by NE
- Survey on SO project implementation and CO2 reduction
- 4 Peer to peer network on system optimization



3. Achievements – Financial Component

3.EE Financial Capacity Development	Achieved April 2016
Banks/ Financial institutions and Industries Energy Managers are trained on EE financing	Training material completed, 190 Banks staff were trained and 88 energy managers were trained
	Guideline for EE project investment in Indonesian for OJK
	25 new trainers trained in the ToT

Activities in 2016 :

- 3-Day-Training on EE Project Financing for Financial Institutions in Medan, Bali.
- Peer to peer network on EnMS and SO for Government , Banks, ESCO, National Expert and Industries
- Printing of training material and guideline of EE project financing.



18



4. Achievements – CO2 saving

4. CO2 Saving	Target	Achievement April 2016
Direct *	67,442 ton	689,222 ton
In Direct **	522,558 ton	to be confirmed
Total	590,000 ton	

*During project life time, by trained industries

** 10 years, included saving by vendors

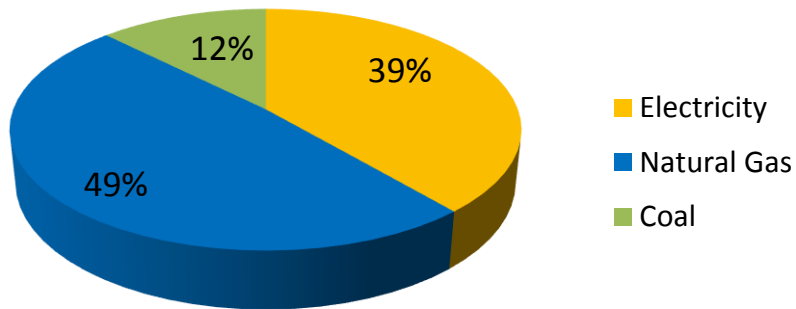
Activities in 2016 and 2017 :

➤ Continually monitor project impact to energy saving and CO2 reduction

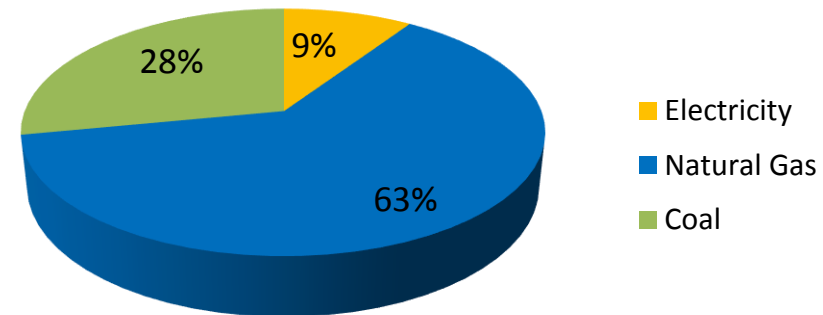


Program	Pilots	Energy Saving (KWh) by source in 7 years			Total (KWh)
		Electricity	Natural Gas	Coal	
EnMS	18	344,540,000	434,133,000	111,300,000	889,973,000
ESO	36	35,895,677	700,082,063	280,301,163	1,016,278,903
Grand Total (KWh)					1,906,251,903

EnMS Energy Saving up to 7 years



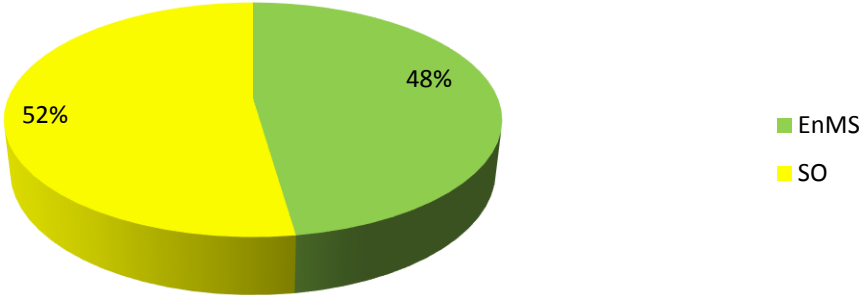
ESO Energy Saving up to 7 years



IEE Program Results and Achievements

Program	Pilots	Up to 7 years		Investment (USD)
		CO2 Reduction (ton)	Cost Saving (USD)	
EnMS	18	576,244	48,168,676	1,000,255
ESO	36	631,507	34,371,091	2,684,182
Total		1,207,752	82,539,767	3,684,437

CO2 saving (ton/7 years)



Massive Campaign



- **Cut 10 % Campaign** : 4 cities massively supported by above and below the line activities
- Developing 1.128 young public servants as **EE Driver** in each offices
- **Internalization of EE into Education**
(Competition, Curriculum, Capacity building for teacher, etc)
- etc

- Energy efficiency ratio (EER).
EER : $\text{Efek pendinginan (Btu/Jam)} / \text{Energi Input (W)}$



CUT 10%

Jakarta car free day 15 Mei 2016





Cut 10%
launched at 15 May 2016



PENGERAK ENERGI TANAH AIR

- Developing 1.128 young public servants as EE Driver in each offices
- Outreach activities : Socialization to community, mall, special events, etc

Home and School Energy Competition



DIREKTORAT JENDERAL ENERGI BARU, TERBARUKAN DAN KONSERVASI ENERGI
KEMENTERIAN ENERGI DAN SUMBER DAYA MINERAL



Terima Kasih
Thank you



[HTTP://WWW.EBTKE.ESDM.GO.ID/](http://www.ebtke.esdm.go.id/)